Missouri EPIDEMIOLOGIST

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Dr. Maureen Dempsey Named State Health Director

Mary Kay Hager
Office of Public Information

On June 11, Dr. Maureen Dempsey took over the top post at the Department of Health. With her appointment, she brings a wealth of knowledge, expertise and firsthand experience.

In fact, her clinical experience working with premature and critically ill babies led her to a career in public health. After finishing her medical school residency in child health and Neonatal Fellowship at the University of Missouri-Columbia (UMC) Health Sciences Center in June 1988, she worked as a staff physician at two St. Louis area hospitals. During her training and the two and one-half years she worked in the emergency room and nursery, she saw firsthand the problems and obstacles that families face. She became board certified in General Pediatrics in 1990.

"I saw the same recurring themes for those I cared for, such as lack of prenatal care, substance abuse, battered families, low income and lack of immunizations," Dr. Dempsey said. "All of these things led to my desire to become more involved directly."

Dr. Dempsey began her state career in 1991 as medical director for the Division of Maternal, Child and Family Health, serving as interim division director for five months in 1993. She joined the Community Health Assessment Resource Team (CHART) in 1994 and for the next two years played a key role in designing the medical components and building the program up from the ground floor. In May 1996, she was named the chief of the Bureau of Immunization. During her tenure at the bureau, the state's immunization rates rose 12 percent in one year's time. She also has been an assistant professor in the UMC Department of Child Health in the Health Sciences Center.

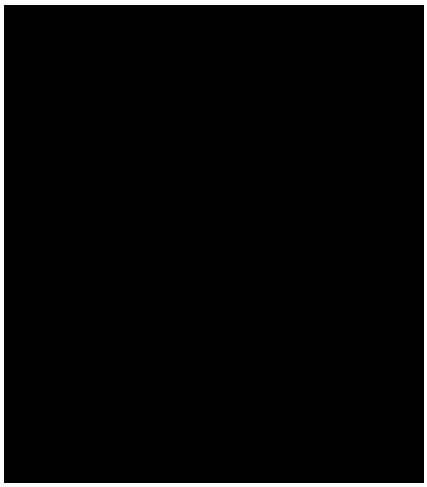
As she takes over the reins, Dr. Dempsey will give high priority to addressing a top public health concern in Missouri—access to health care and the quality of the health care that's provided. Another of her main goals for the department will be defining our public health mission.

"We are the only ones qualified to determine our position in the overall health care system," she said. "We must remain focused and find out what will have the best impact on the people we serve."

Dr. Dempsey plans to practice clinical medicine one day a week at the Family Health Center in Columbia. Her area of focus is in primary care with children.

"I feel it is extremely important to continue to work one-on-one with the people," she said. "It's the best way to see how the broad-based policies and programs we implement at the state level affect the patients and the health care providers."

Although running the department will take a lot of time, she also feels it is



important to find time for some of the outdoor activities she enjoys, including canoeing, hiking and camping. She also likes reading and playing the piano.

Dr. Dempsey and her husband, Michael Rovetto, Ph.D., live in Columbia. She has two stepchildren, Bernard Rovetto, 26, and Michelle Rovetto, 24.

Inside this Issue...

Vaccine-Preventable Diseases - January–June 1997

Georgia Storm, R.N.
Bureau of Immunization

Even as immunization rates continue to increase at the state and national levels, surveillance of the incidence of vaccine preventable diseases is as important as ever. Children continue to contract these diseases each year. The only effective way to decrease or eliminate them is to identify as many cases as possible and develop strategies in response to the circumstances in which they occur.

The Bureau of Immunization has compiled the data for the first half of 1997 (January–June) for all reported vaccine-preventable diseases in Missouri.

There were 24 confirmed and five probable cases of pertussis investigated in Missouri from January through June 1997. See Figure 1. During the same reporting period in 1996, 17 cases were reported. Sixteen of the confirmed cases and all five probable cases reported in 1997 were infants under 6 months of age. Between January 1 and March 1, 1997, the Centers for Disease Control and Prevention (CDC) received reports of 682 cases of pertussis nationwide. Unlike Missouri, the increase in pertussis cases reported nationwide was in individuals 10 years of age and older. Some of the reasons for the increase may be physicians' increased awareness, early recognition and diagnosis of pertussis, as well as enhanced surveillance and more complete reporting.

For the first half of 1997, one case of measles was reported and confirmed in Linn County. See Figure 1. This was a 4-year-old with documentation of two doses of MMR. The State Public Health Laboratory began using the IgM capture EIA test for measles and rubella on April 14, 1997. Prior to this, they had used the direct ELISA, which can miss low level IgM specimens and has a higher rate of false positives than the IgM capture EIA. Specimens should be collected five to six days after rash onset so that the IgG antibodies do not interfere, thus giving a false negative result. Three suspect cases tested positive using the ELISA test, two were retested using the IgM capture EIA and were found to be negative. During the first half of 1996, two measles cases were reported in Gasconade County.

There have been no confirmed cases of rubella, mumps or *Haemophilus influenzae* type B during the first half of 1997. During the first half of 1996, one case of *Haemophilus influenzae* type B was reported but no rubella or mumps.

The Bureau of Immunization forwards weekly information regarding vaccine-preventable diseases to the Centers for Disease Control and Prevention in Atlanta, Georgia through the National Electronic Telecommunications Surveillance System (NETSS).

If you have questions or need additional information about vaccine-preventable diseases, please contact Georgia Storm at (573) 751-6133.

Attention:
Vaccine for Children Providers

Vaccine for Children (VFC) providers have had questions about the age limit for VFC-eligible children. All children ages 0 through 18 years who meet the other VFC criteria are qualified.

This interpretation means VFC vaccine can be given after the 18th birthday, but prior to the 19th birthday.

If you have questions, please call the VFC Program at (800) 219-3224.

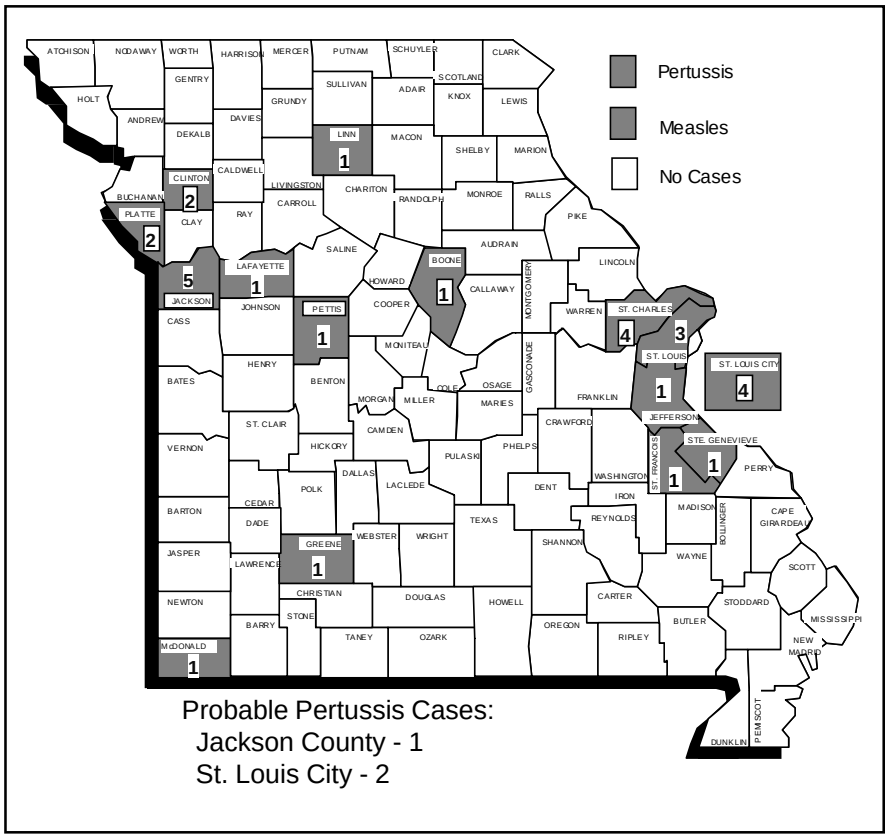


Figure 1. Reported vaccine-preventable diseases, Missouri, January–June 1997

New Case Definitions for Notifiable Diseases

Bureau of Communicable Disease Control

The Centers for Disease Control and Prevention (CDC) has published revised case definitions for infectious disease surveillance. These definitions have been recommended by both CDC and the Council of State and Territorial Epidemiologists (CSTE), and they have been endorsed for use by the Association of State and Territorial Public Health Laboratory Directors (ASTPHLD). "Case Definitions for Infectious Conditions Under Public Health Surveillance" was printed in the May 2, 1997 issue of the *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports*, Vol. 46, No. RR-10. The primary purpose of this document is to provide state health departments with uniform case definitions for reporting morbidity data to CDC. Over 40 revised case definitions were adopted in 1996.

Uniform case criteria were first published by CDC in October 1990 in order to increase the specificity of reporting and improve the comparability of diseases reported from different geographic areas.

These definitions are not intended to be used as the sole criteria for establishing clinical diagnoses, determining the standard of care necessary for a particular patient, setting guidelines for quality assurance or providing standards for reimbursement; neither should they be used as the only criteria for public health action. A medical provider may diagnose a disease with the use of additional clinical, epidemiologic and laboratory data, even though the formal surveillance case definition may not be met and the case cannot be entered into the national database.

Definition of Terms Used in Case Classification

Clinically Compatible Case: a clinical syndrome generally compatible with the disease, as described in the clinical description.

Confirmed Case: a case that is classified as confirmed for reporting purposes.

Epidemiologically Linked Case: a case in which

a) the patient has had contact with one or more persons who either have / had the disease or have been exposed to a point source of infection (i.e., a single source of infection, such as an event leading to a foodborne-disease outbreak, to which all confirmed case-patients were exposed) and

b) transmission of the agent by the usual modes of transmission is plausible.

A case may be considered epidemiologically linked to a laboratory-confirmed case if at least one case in the chain of transmission is laboratory confirmed.

Laboratory-Confirmed Case: a case that is confirmed by one or more of the laboratory methods listed in the case definition under Laboratory Criteria for Diagnosis. Although other laboratory methods can be used in clinical diagnosis, only those listed are accepted as laboratory confirmation for national reporting purposes.

Probable Case: a case that is classified as probable for reporting purposes.

Supportive or Presumptive Laboratory Results: specified laboratory results that are consistent with the diagnosis, yet do not meet the criteria for laboratory confirmation.

Suspected Case: a case that is classified as suspected for reporting purposes.

Hepatitis C, Acute, and Hepatitis non-A, non-B, Acute

Hepatitis C is being categorized as a disease distinct from non-A, non-B hepatitis. According to the case definition, a diagnosis of hepatitis C requires that a test for antibody to hepatitis C virus (anti-HCV) is positive and verified by a supplemental test. To meet the case definition for non-A, non-B hepatitis, a test for anti-HCV (if done) must be negative. In addition, for either acute hepatitis C or acute non-A, non-B hepatitis to be diagnosed, the following criteria must also be met: *An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels.*

Additional laboratory criteria must also be met for both diseases:

1. *Serum aminotransferase levels >2.5 times the upper limit of normal, and*
2. *IgM anti-HAV negative, and*
3. *IgM anti-HBc negative (if done) or HBsAg negative.*

According to CDC, up to 20 percent of acute hepatitis C cases will be anti-HCV

(continued on page 4)

(continued from page 3)
negative when reported, and will be classified as non-A, non-B hepatitis. This is due to the fact that some (5–10%) have not yet seroconverted and others (5–10%) remain seronegative even with prolonged follow-up. Available serologic tests for anti-HCV do not distinguish between acute, chronic or past infection. Consequently, other causes of acute hepatitis should be excluded for anti-HCV positive patients who have an acute illness compatible with viral hepatitis.

Legionellosis

Previously, a Legionellosis case was categorized as either confirmed or probable, but in the new definition, the category, "probable case," has been eliminated because it was based on a single IFA titer, which lacks the necessary specificity for surveillance. A case of Legionellosis is now classified only as, "confirmed," which is defined as "a clinically compatible case that is laboratory confirmed." *Legionellosis is associated with two distinct illnesses: either Legionnaire disease, which is characterized by fever, myalgia, cough, pneumonia; or Pontiac fever, a milder illness without pneumonia*.

Laboratory criteria for diagnosis are:

1. Isolation of *Legionella* from respiratory secretions, lung tissue, pleural fluid or other normally sterile fluids, or
2. Demonstration of a fourfold or greater rise in the reciprocal immunofluorescence antibody (IFA) titer to ≥1:128 against *Legionella pneumophila* serogroup 1 between paired acute-and convalescent-phase serum specimens, or
3. Detection of *L. pneumophila* serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing, or
4. Demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay or enzyme-linked immunosorbent assay.

Table 1. Infectious Diseases Designated as Notifiable at the National Level, United States, 1997.

- Acquired immunodeficiency syndrome (AIDS)
- Anthrax
- Botulism
- Brucellosis
- Chancroid
- *Chlamydia trachomatis*, genital infections
- Cholera
- Coccidioidomycosis
- Cryptosporidiosis
- Diphtheria
- Encephalitis, California serogroup
- Encephalitis, eastern equine
- Encephalitis, St. Louis
- Encephalitis, western equine
- *Escherichia coli* O157:H7
- Gonorrhea
- *Haemophilus influenzae*, invasive disease
- Hansen disease (leprosy)
- Hantavirus pulmonary syndrome
- Hemolytic uremic syndrome, post-diarrheal
- Hepatitis A
- Hepatitis B
- Hepatitis, C/non-A, non-B
- HIV infection, pediatric
- Legionellosis
- Lyme disease
- Malaria
- Measles
- Meningococcal disease
- Mumps
- Pertussis
- Plague
- Poliomyelitis, paralytic
- Psittacosis
- Rabies, animal
- Rabies, human
- Rocky Mountain spotted fever
- Rubella
- Rubella, congenital syndrome
- Salmonellosis
- Shigellosis
- Streptococcal disease, invasive Group A
- *Streptococcus pneumoniae*, drug-resistant invasive disease
- Streptococcal toxic-shock syndrome
- Syphilis
- Syphilis, congenital
- Tetanus
- Toxic-shock syndrome
- Trichinosis
- Tuberculosis
- Typhoid fever
- Yellow fever

Table 2. Infectious Diseases and Conditions That Are Not Nationally Notifiable but for Which Case Definitions May be Useful for Surveillance*, United States, 1997.

- Amebiasis
- Aseptic meningitis
- Bacterial meningitis, other
- *Campylobacter* infection
- *Cyclospora* infection
- Dengue fever
- Ehrlichiosis
- Genital herpes (herpes simplex virus)
- Genital warts
- Giardiasis
- Granuloma inguinale
- Leptospirosis
- Listeriosis
- Lymphogranuloma venereum
- Mucopurulent cervicitis
- Nongonococcal urethritis
- Pelvic inflammatory disease
- Rheumatic fever
- Tularemia
- Varicella (chickenpox)

* This list includes only the diseases and conditions that are not nationally notifiable for which case definitions are provided in the CDC report (MMWR 1997;46[RR-10]); it is not a complete list of such diseases for which CDC and state and territorial health departments maintain surveillance systems.

Streptococcal Disease, Invasive, Group A

Streptococcal Disease, Invasive, Group A is clinically described as *invasive group A streptococcal infection which may manifest as any of several clinical syndromes, including pneumonia, bacteremia in association with cutaneous infection (e.g., cellulitis, erysipelas, or infection of a surgical or nonsurgical wound), deep soft-tissue infection (e.g., myositis or necrotizing fasciitis), meningitis, peritonitis, osteomyelitis, septic arthritis, postpartum sepsis (i.e., puerperal fever), neonatal sepsis, and nonfocal bacteremia*. In addition, to meet the case definition, there must be laboratory confirmation consisting of *isolation of group A Streptococcus (*Streptococcus pyogenes*) by culture from a normally sterile site (e.g., blood or cerebrospinal fluid, or, less commonly, joint, pleural, or pericardial fluid).*

Streptococcus pneumoniae, Drug-Resistant Invasive Disease

Streptococcus pneumoniae, Drug-Resistant Invasive Disease is a CDC notifiable disease, although not currently reportable in Missouri. However, there is considerable interest in this organism nationwide, and any practitioner or laboratory identifying a case meeting the following level of resistance should report it to the Department of Health in order that a database can be maintained.

S. pneumoniae *causes many clinical syndromes, depending on the site of infection (e.g., acute otitis media, pneumonia, bacteremia, or meningitis).* According to the revised case definition, cases may be classified as either confirmed or probable.

A confirmed case is defined as *a clinically compatible case that is laboratory confirmed*. Laboratory confirmation requires:

1. Isolation of *S. pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid, or, less commonly, joint, pleural, or pericardial fluid), and
2. "Nonsusceptible" isolate (i.e., intermediate- or high-level resistance of the *S. pneumoniae* isolate to at least one antimicrobial agent currently approved for use in treating pneumococcal infection.

Resistance [as used in this definition] *is defined by National Committee for Clinical Laboratory Standards (NCCLS)-approved methods and NCCLS-approved interpretive minimum inhibitory concentration (MIC) standards (mg/mL) for* S. pneumoniae. *NCCLS recommends that all invasive* S. pneumoniae *isolates found to be "possibly resistant" to beta-lactams (i.e., an oxacillin zone size of <20 mm) by oxacillin screening should undergo further susceptibility testing by using a quantitative MIC method acceptable for penicillin, extended-spectrum cephalosporins, and other drugs as clinically indicated.*

A probable case is defined as *a clinically compatible case caused by laboratory-confirmed culture of* S. pneumoniae *identified as "nonsusceptible" (i.e., an oxacillin zone size of <20 mm) when oxacillin screening is the only method of antimicrobial susceptibility testing performed.*

Aseptic Meningitis

Aseptic meningitis has been removed from CDC's list of notifiable infectious diseases, but it remains a reportable disease in Missouri. It should always be investigated when clusters or outbreaks are evident to the local health department. The clinical description is *a syndrome characterized by acute onset of meningeal symptoms, fever and cerebrospinal fluid pleocytosis, with bacteriologically sterile cultures*. Aseptic meningitis is a syndrome of multiple etiologies, but many cases are caused by viral agents. A case is considered "confirmed" if it is *a clinically compatible case diagnosed by a physician as aseptic meningitis, with no laboratory evidence of bacterial or fungal meningitis.*

A complete copy of "Case Definitions for Infectious Conditions Under Public Health Surveillance" can be obtained through CDC's website at http://www.cdc.gov/epo/mmwr/other/case_def/about.html. The document can be viewed using Adobe Acrobat Reader. This free software can be downloaded from http://www.adobe.com/prodindex/acrobat/download.html.

As knowledge increases and diagnostic technology improves, some case definitions will change to reflect those trends.

The Department of Health (DOH) must rely on health-care providers, infection control professionals, laboratories and other public health personnel to report the occurrence of notifiable diseases. Without such reporting, DOH cannot respond to health professionals, the media and the public who desire information about current trends, unusual occurrences of diseases and the effectiveness of intervention activities. Data on reported cases of disease form the basis for the Bureau of Communicable Disease Control's policy decisions, and for the prioritizing and allocating of resources for disease prevention and control.

The Bureau of Communicable Disease Control sincerely appreciates the efforts of so many persons statewide who contribute to the data on reportable diseases so that the derived information can be meaningfully used on behalf of the citizens of Missouri.

Reporting forms can be obtained by contacting your local health department or calling the Bureau of Communicable Disease Control at (800) 392-0272 or (573) 751-6113.

Big River Mine Tailings Superfund Site Lead Exposure Study

Scott Clardy
Bureau of Environmental Epidemiology

The Centers for Disease Control and Prevention (CDC) has described childhood lead poisoning as one of the most common preventable environment-related health problems for children in the United States today. Enough is now known about sources and pathways of lead exposure for the CDC to establish a national goal to end the problem of lead poisoning by the year 2012. Sources of lead exposure include air, food, water, dust and soil. Throughout history, lead has been widely used in paints, glazes, eating utensils, plumbing, medicines, and recently in vehicle batteries and gasoline. In addition, Missouri citizens have been exposed to lead through mining, milling and smelting of lead ore. Missouri ranks as the top lead-producing state in the nation.

Lead's poisonous effect on the health of humans, especially children, has been solidly proven by science and well documented in scientific literature. Consistent findings from numerous extensive studies indicate that lead causes harmful health effects on the development of unborn babies and young children, including abnormal nervous system development, irregular physical growth and lowered IQ scores. Health and exposure studies have shown these harmful effects to be associated with elevated blood lead levels as low as ten micrograms of lead per one deciliter of blood (10 µg/dl).

The Big River Superfund Site is an old lead mining and milling area 70 miles south of St. Louis, Missouri. Prominent reminders of mining history remain today at the site which include six major tailings piles or ponds, several smaller tailings areas and numerous closed mines scattered throughout the 110 square mile Old Lead Belt area. Chat and tailings have been spread throughout the area by man and erosion. However, the greatest exposure to lead is from indoor dust, where contaminants are trapped, dispersed and settled over a confined area. This dust contains lead from both the mining area and lead-based paint in the home.

Table 1. Average Blood and Environmental Lead Levels, Big River Mine Tailings Superfund Site Lead Exposure Study, Missouri, 1997

Factor	Study Group	Control Group
Blood Lead (µg/dl)*	6.52	3.43
Lead in Water (µg/l)	2.38	3.55
Lead in Dripline Soil (µg/g)*	1794.62	625.62
Lead in Play Area Soil (µg/g)*	1282.28	127.15
Lead in Yard Soil (µg/g)*	1078.76	87.57
Lead Loading of Floor Cassette Vacuum (µg/ft^2)*	18.04	4.10
Lead Loading in Window Sill Dust Wipe (µg/ft^2)*	1641.52	196.95
Lead Concentration in Vacuum Bag (µg/g)*	1214.49	173.02

*Factor showed a statistically significant difference ($p < .05$) between the study and control groups.

In response to concerns that children living in the area were experiencing elevated blood lead levels, the Missouri Department of Health (DOH) conducted the Big River Mine Tailings Superfund Site Lead Exposure Study. The study was done in cooperation with the St. Louis University School of Public Health, the St. Francois County Health Department and the federal Agency for Toxic Substances and Disease Registry (ATSDR).

The Lead Exposure Study was conducted from 1995–97. The objective was to determine if children living in the Big River Mine Tailings Superfund Site area have blood lead levels higher than children living in a nearby non-mining area (control population), and how mining waste affects that increase.

Through an in-depth local-population census, eligible persons were randomly selected for participation in the study. To be eligible, candidates had to be between 6–90 months of age, and had to have been living at their current address in the defined study area for 60 days or more (one child was 92 months old, but was included because an incorrect date of birth was obtained during the census). Blood samples were obtained from the participants and analyzed for lead levels. In addition, the participants' parents or guardians were asked to complete a questionnaire that included information on the child and the household. Finally, environmental samples were taken to test for the presence of lead in drinking water, soil, house dust, vacuum cleaner bag dust and selected paint samples. Table 1 shows the average blood lead levels and selected environmental media found in both the study and control areas.

As can be seen in Table 1, lead levels were significantly higher in the study group for most environmental media. In addition, results indicate significantly more blood lead elevations in the study group compared to the control population. Seventeen percent of the children

in the study group had blood lead levels greater than or equal to 10 µg/dl, while only three percent of the children in the control group had blood lead levels of 10 µg/dl or greater.

The study results indicate that the elevated blood lead levels were a product of exposure to lead mining waste, lead-based paint and other sources in the area because the only substantial difference between the study and control areas in terms of exposure to lead is the presence of lead mining and mining waste. Based on these conclusions, the study makes the following recommendations:

1. Although mining waste accounts for the difference between the study and control areas, both lead paint and soil/dust lead were related to elevated blood lead levels. Blood lead levels can probably be lowered by reducing the exposure to mining waste and lead-based paint.
2. An educational and environmental intervention program that addresses both of these exposure sources should be initiated.
3. Future studies should focus on effective interventions to reduce exposure and on determining adverse neurobehavioral outcomes such as school achievement and IQ. X-ray fluorescence technology could be used to estimate long-term exposure to lead by measuring the accumulation of lead in bone. These measures of exposure could then be evaluated against markers of cognitive development.

Because of the increased lead levels in local soil and dust found in the study, DOH, along with federal and local health agencies, are informing parents in the study area of the increased risk of lead poisoning to their children. Because of these increased exposure levels, parents in the Big River Superfund Site area of St. Francois County should be encouraged to have their children's blood tested for lead at least once every six months. If two consecutive blood lead tests are less than 10 µg/dl, or if three consecutive tests are less than 15 µg/dl, then annual testing is recommended thereafter. Parents and physicians in the area can call the St. Francois County Health Department at (573) 431-1947 with questions about blood lead testing.

Parents should also keep in mind that personal and household cleanliness is a key to keeping lead exposure to a minimum, and children should be encouraged to play only in grassy areas.

Parents and other area residents should know that lead levels found in this area do not present an immediate health risk to children or adults. However, study results do show that if children ages 6 months to 6 years continue to be exposed to the elevated levels of lead in soil and dust, they are at increased risk of damage to their developing nervous systems. This could have a negative impact on the child's potential to achieve in school and the workplace.

Health care providers across Missouri, especially in lead-producing and/or urban areas, should be aware of the potential for childhood lead exposure. DOH recommends children have a blood lead test completed at 12 and 24 months of age. In addition, all children 6 to 72 months of age should be interviewed for risk factors by their health care provider, and if risk factors are identified, the child should be tested. If the child has an elevated blood lead level, venous blood lead levels should be done every six months until the level falls below 10 µg/dl for three consecutive tests.

Any questions regarding lead exposure or the Big River Mine Tailings Superfund Site Lead Exposure Study should be directed to Scott Clardy in the Bureau of Environmental Epidemiology at (800) 392-7245 or (573) 751-6404.

State Public Health Laboratory Report

Newborn Screening — Hypothyroidism, Phenylketonuria, Galactosemia and Hemoglobinopathies

James Baumgartner, B.S., M.B.A., Chief, Metabolic Disease Unit

	May 97	June 97	Total YTD
Specimens Tested	9,766	9,540	57,162
Initial (percent)	64.9%	64.0%	36,772
Repeat (percent)	35.1%	36.0%	20,390
Specimens: Unsatisfactory	270	179	1,347
HT Borderline	951	664	5,129
HT Presumptive	19	20	124
PKU Borderline	0	0	3
PKU Presumptive Positive	1	1	5
GAL Borderline	83	29	264
GAL Presumptive Positive	10	4	24
FAS (Sickle cell trait)	60	84	455
FAC (Hb C trait)	16	23	129
FAX (Hb variant)	12	10	83
FS (Sickle cell disease)	2	4	9
FSC (Sickle C disease)	0	0	6
FC (Hb C disease)	1	1	3

HT = Hypothyroidism, PKU = Phenylketonuria, GAL = Galactosemia, Hb = Hemoglobin, YTD = Year to Date

Pre-Exposure Rabies Vaccination

F. T. Satalowich, D.V.M., M.S.P.H.
Bureau of Veterinary Public Health

Consideration of pre-exposure rabies vaccination for individuals at high risk of exposure is highly recommended. Individuals who should be vaccinated against rabies include: veterinarians, veterinary technicians, animal control officers, trappers and spelunkers.

While pre-exposure rabies vaccination does not preclude the necessity of a modified regimen of post-exposure treatment after exposure to a known rabid animal (laboratory confirmed), it does protect the individual from incidental exposure.

The rabies vaccine has been shown to be 100 percent effective in immuno-competent individuals, when given via either intramuscular (IM) or intradermal (ID) route. Titer studies have shown that vaccinees attain adequate serum rabies neutralizing antibody titers of 0.5IU/ml or greater. In the United States, boosters are recommended every two to three years. In Europe, this vaccine is recognized as effective for a five-year period.

The pre-exposure vaccine regimen consists of three doses, given on a schedule of days 0, 7 and 28 by either the ID or IM route, using any of the human rabies vaccine products on the market.

Human rabies vaccines currently on the market are:

- IMOVAC I.D., HDCV (Supplied by Merieux-Connaught)
- IMOVAC I.M., HDCV (Supplied by Merieux-Connaught)
- Rabies Vaccine Adsorbed, I.M. (Supplied by Pfizer)

These are the same vaccines that are used in post-exposure treatments, with the exception of IMOVAC I.D., which is for pre-exposure vaccination only. The rabies vaccines are efficacious and safe; however, they are expensive. Physicians should be able to obtain these products from their local hospital pharmacies.

The Missouri Veterinary Medical Association has a program with the Missouri Department of Health to assist individuals who are having difficulty obtaining vaccine or getting vaccinated in their local area.

For more information about pre-exposure rabies vaccination, contact the Bureau of Veterinary Public Health at (573) 751-6136.

Availability of Diphtheria Antitoxin Through an Investigational New Drug Protocol

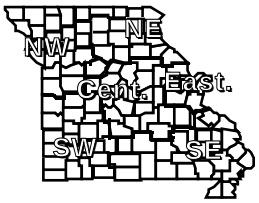
Although diphtheria is a rare disease in the United States, access to diphtheria antitoxin (DAT) is essential to ensure effective treatment of a case. The previously available supply of United States-licensed DAT (Diphtheria Antitoxin, Equine, Connaught Laboratories, Inc., Swiftwater, Pennsylvania) had an expiration date of January 6, 1997, and should no longer be used. No manufacturer has announced an intention to license a DAT product in the United States.

A DAT product (i.e., Diphtheria Antitoxin, Pasteur Merieux, Lyons, France), licensed in Europe and similar to the previously licensed United States product, is now available in the United States through an Investigational New Drug (IND) protocol through the Centers for Disease Control and Prevention (CDC). This protocol is designed to enable the emergency treatment of patients with suspected diphtheria. Decisions to dispense DAT from U.S. Public Health Service quarantine stations will be made by medical epidemiology staff of CDC's Child Vaccine Preventable Disease Branch, Epidemiology and Surveillance Division, National Immunization Program, in discussion with the treating physician.

Physicians treating a case of suspected diphtheria can contact the diphtheria duty officer at (404) 639-8255, 8 a.m. to 4:30 p.m. Eastern time, or (404) 639-2889, all other times.

All suspected diphtheria cases should also be reported to local and state health departments.

Reprinted from Morbidity and Mortality Weekly Report, May 2, 1997, Vol. 46, No. 17.



Missouri Department of Health
Division of Environmental Health and Communicable Disease Prevention
QUARTERLY REPORT

Reporting Period *
April - June, 1997

	Districts							KANSAS CITY	ST. LOUIS CITY	ST. LOUIS CO.	SPGFLD GREENE CO.	3 MONTH STATE TOTALS		CUMULATIVE		
	** NW	NE	CD	SE	** SW	** ED	*** OTHER					1997	1996	FOR 1997	FOR 1996	5 YR MEDIAN
Vaccine Preventable Dis.																
Diphtheria	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hib Meningitis	0	0	0	0	0	0		0	0	0	0	0	0	0	0	5
Hib Other Invasive	0	0	1	0	0	0		0	0	0	0	1	2	3	5	10
Influenza (lab confirmed)	0	12	6	0	0	0		0	0	2	2	22	23	228	155	163
Measles	0	0	0	0	0	0		0	0	0	0	0	1	1	2	1
Mumps	0	0	0	0	0	0		0	0	0	0	0	2	0	2	17
Pertussis	2	0	2	1	1	2		2	2	0	1	13	12	29	15	17
Polio	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1
Tetanus	0	0	0	0	0	0		0	0	0	0	0	0	0	1	0
Viral Hepatitis																
A	42	13	14	4	95	22		5	4	13	69	281	270	548	511	511
B	7	0	2	1	11	1		4	28	4	7	65	82	195	152	228
Non A - Non B	0	0	1	0	5	2		18	0	2	1	29	7	49	12	12
Unspecified	0	0	1	0	0	0		0	0	0	0	1	0	1	0	1
Meningitis																
Meningococcal	2	0	4	0	3	0		1	2	3	0	15	11	50	35	25
Enteric Infections																
Campylobacter	8	5	23	16	22	6		6	13	47	12	158	179	247	243	260
Salmonella	31	3	35	13	11	11		91	5	17	9	226	125	308	231	196
Shigella	5	1	23	10	1	2		6	3	2	0	53	80	124	225	238
Typhoid Fever	0	0	0	0	0	0		0	0	0	0	0	1	0	1	1
Parasitic Infections																
Giardiasis	8	6	22	11	9	9		10	32	25	4	136	129	273	304	271
Sexually Transmitted Dis.																
AIDS	7	1	8	2	5	0	10	26	22	25	3	109	212	201	381	177
Gonorrhea	75	10	105	108	43	25		462	828	495		2151	1976	3723	4193	2901
Prim. & Sec. syphilis	0	0	0	2	0	1		0	15	11		29	50	51	143	255
Tuberculosis																
Extrapulmonary	0	0	2	0	0	0	0	3	3	6	0	14	8	20	12	10
Pulmonary	5	0	6	3	4	2	0	8	12	6	3	49	48	80	77	52
Zoonotic																
Psittacosis	0	0	0	0	0	0		0	0	0	0	0	1	0	1	1
Rabies (Animal)	0	0	0	5	0	0		0	0	0	0	5	6	11	14	10
Rocky Mtn. Sp. Fever	3	0	0	1	2	0		0	0	0	0	6	8	7	8	6
Tularemia	1	0	1	1	1	0		0	1	0	0	5	3	5	3	8

TEAR OUT FOR FUTURE REFERENCE

Low Frequency Diseases

Anthrax
Botulism
Brucellosis
Chancroid
Cholera
Cryptosporidiosis - 4
Encephalitis (infectious)
Encephalitis (viral/arbo-viral)
Granuloma Inguinale
Kawasaki Disease - 3
Legionellosis - 4
Leptospirosis
Lymphogranuloma Venereum
Malaria - 2
Plague
Rabies (human)
Reye Syndrome
Rheumatic fever, acute
Toxic Shock Syndrome - 1
Trichinosis

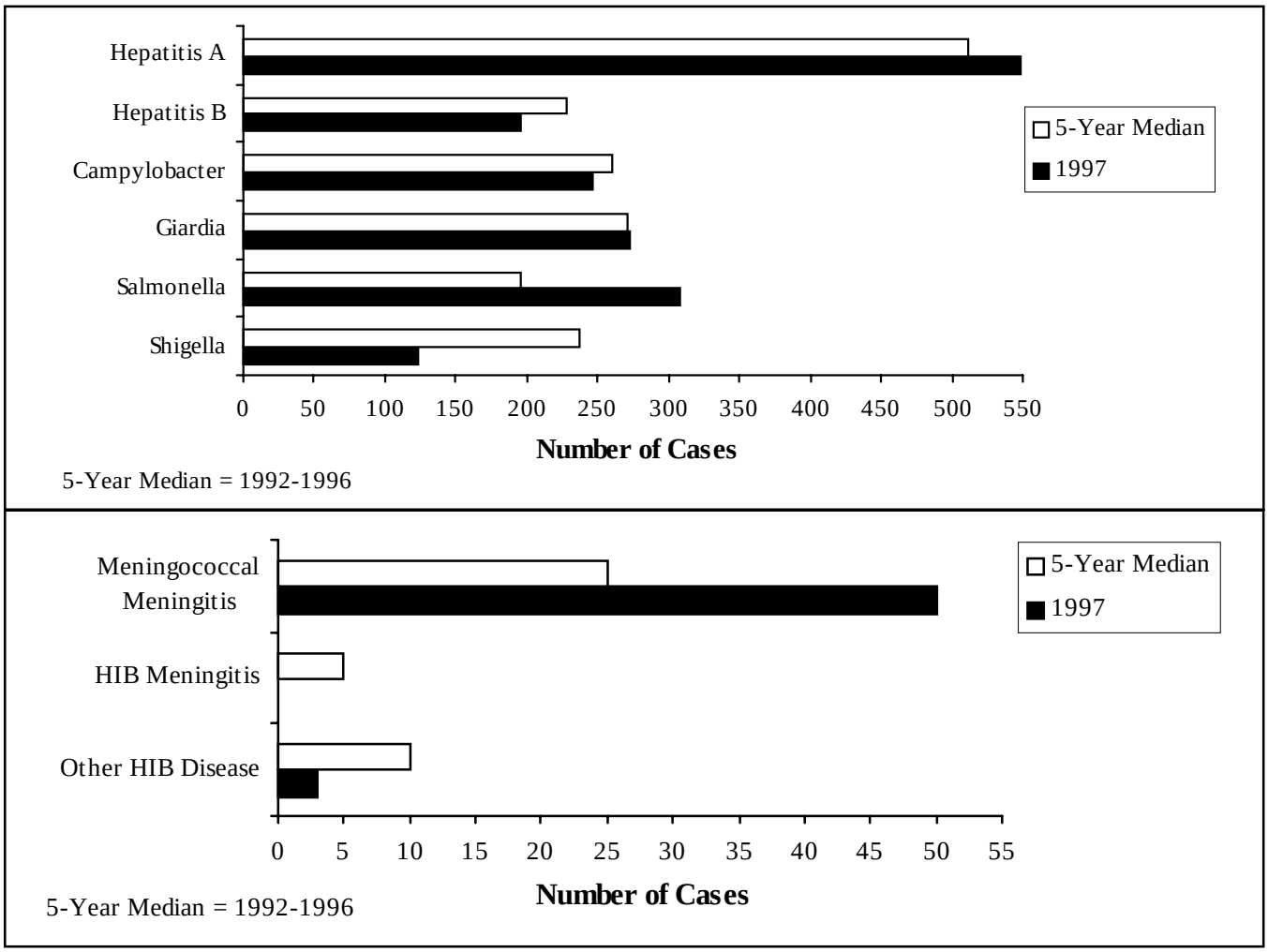
Outbreaks

Foodborne - 3
Waterborne
Nosocomial - 1
Other
Salmonella - 1
C. perfringens - 1
Norwalk-like - 1

*Reporting Period Beginning March 30, Ending June 28, 1997.
**Totals do not include KC, SLC, SLCo, or Springfield
***State and Federal Institutions

Due to data editing, totals may change.

Disease Reports, January–June 1997 and 5-Year Median



VIRAL HEPATITIS

The 548 cases of Hepatitis A reported during the January–June 1997 time period is an increase of 7.2%, from the 511 cases of Hepatitis A during January–June 1996. The bulk of the cases are still being reported from the Southwestern Health District. The number of cases for the six-month period for 1996 is the five-year median for the time period. Hepatitis B cases rose in 1997 by 28.3% for the six-month period, from 152 in 1996 to 195 in 1997, reversing a three-year trend. Hepatitis B is still 14.4% below the five-year six-month median for January–June of 228 cases.

ENTERICS

Campylobacter rose slightly by .16% during the monthly time period, from 243 cases in 1996 to 247 cases in 1997. It fell 5.0% from the five-year median of 260 cases. Salmonella increased by a third (33.3%) from 231 cases in 1996 to 308 cases in 1997. This is an increase of 57.1% over the five-year median of 196 cases. Surprisingly, shigellosis dropped by 44.9% from 225 cases in 1996 to 124 cases in 1997. It was 47.9 below the five-year median of 238 cases.

PARASITES

Giardiasis decreased by 10.2% from 304 cases during the 1996 monthly period to 273 in 1997. It is a slight increase of by 0.74% from the five-year median is 271 cases.

MENINGITIS

Meningococcal meningitis rose by 42.9% from 35 cases in 1996 to 50 cases in 1997. This is a 100.0% increase over the five-year median of 25 cases.

HIB DISEASE

No cases of Hib meningitis were reported for the period in 1997 and none in 1996. The five-year median is five cases. Other invasive Hib disease fell from five cases in 1996 to three cases in 1997, a drop of 40.0%. Other invasive Hib disease was made reportable in 1990 and there is now a January–June monthly five-year median for other invasive Hib disease. Other invasive Hib disease fell by 70.0% from the monthly five-year median of ten cases.

Discontinuation of Computer Bulletin Board System

Michael Fobbs, B.A.
Bureau of Communicable Disease Control

On September 30, 1997, the Bulletin Board System (BBS) provided by the Missouri Department of Health's Bureau of Communicable Disease Control will be discontinued.

The BBS was developed in 1995 to provide easy access for health care providers and the public to Department of Health information, particularly communicable disease information, in a quick, easy to update and easy to understand fashion.

This service was initiated because only a limited number of users had access to systems such as the Internet because they had no local Internet providers or commercial services such as America On-line to provide access.

The Department of Health now has an Internet homepage and many of the features available through the BBS are available through this web page. Providing access to the department homepage for users of the BBS was considered by the Bureau of Communicable Disease Control, but new methods of Internet access through phone companies, the expansion in the number of private Internet providers and limited resources within the Department of Health make it infeasible to continue to provide two separate public access channels.

The Department of Health homepage provides the following features:

- Statistical profiles for the state and individual Missouri counties which include monthly disease trends and summary demographic information about diseases by county as well as additional county information on
  - Causes of death
  - Socio-economic indicators
  - Causes of hospitalizations
  - Hospitals
  - Nursing homes
  - Population estimates
  - Maternal and child health status indicators
- Tuberculosis Control Manual
- *Missouri Epidemiologist* newsletter issues and indexes in Adobe Portable Document Format[¶] (PDF) back to 1992; issues for 1997 and indexes for 1992–96 are also available in Hypertext Markup Language (HTML) format
- All Department of Health news releases
- Prevention and wellness issues:
  - Family health
  - Prevention of heat-related illness
  - Nutrition services
  - Smoking and tobacco education
  - Tel-Link
- Department of Health organizational chart, directory of services and employment opportunities
- Listing of local public health agencies
- Directory of disease information
- Electronic versions of various Department of Health newsletters and publications
- Information on obtaining birth and death certificates
- Community health indicators
- Hospital licensing and certification regulations

The department homepage does not allow access to current and previous electronic versions of the Centers for Disease Control and Prevention's (CDC) *Weekly Morbidity and Mortality Weekly Report* (MMWR), but electronic versions of this publication are available free of charge via e-mail or through CDC's homepage. Details on obtaining this publication can be found in the * footnote on page 12 of this issue.

The BBS offered Live Chat areas where one could teleconference with other health professionals who were on-line. This feature is not available through the department homepage at this time.

Another feature offered by BBS was Mail Conferences where one could leave mail to discuss current issues, drug resistant diseases, general subjects, etc. This feature is also not available, but you can e-mail the department through the "Ask Me" feature of the homepage to request information on any topic.

Future items to be added to the department homepage include reference and educational information on HIV/AIDS, immunizations, sexually transmitted diseases and environmental epidemiology. This will include the 1994–95 Biennial Report of Reportable Diseases and Conditions and the HIV/AIDS KWIK Facts.

New items are being added to the DOH homepage every day, so take time to explore the homepage and let us know what additional information you would like to see added. We welcome your comments in our continuing effort to improve the homepage to suit your needs. If you have questions or comments, please call Harold Kirbey at (573) 751-6219 or e-mail him at kirbeh@mail.health.state.mo.us.

The Department of Health homepage can be found at www.health.state.mo.us.

[¶] To read Adobe Portable Document Format (PDF) documents, you need Adobe Acrobat Reader software which is available free of charge. Instructions on downloading the free software can be found at www.adobe.com/prodindex/acrobat/readstep.html.

1997–98 Recommendations for the Use of Influenza Vaccine

The following is a summary of current recommendations on influenza vaccine from the Advisory Committee on Immunization Practices (ACIP). The complete ACIP statement was published in *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports*, Prevention and Control of Influenza, April 25, 1997, Vol. 46, No. RR-9.*

Influenza vaccine is strongly recommended for any person 6 months of age or older who is at increased risk for complications of influenza. Members of high risk groups, if they become ill, are more likely than the general population to require hospitalization. The following persons are at highest risk. They and their close contacts should be targeted for organized vaccination programs.

- Persons 65 years of age and older.
- Residents of nursing homes and other chronic-care facilities that house persons of any age with chronic medical conditions.
- Adults and children with chronic disorders of the pulmonary and cardiovascular systems, including asthma.
- Adults and children who required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies or immunosuppression (including immunosuppression caused by medications).
- Children and teenagers 6 months to 18 years of age who are receiving long-term aspirin therapy and, therefore, might be at risk for developing Reye syndrome after influenza.
- Women who will be in the second/third trimester of pregnancy during the influenza season.

Groups that can transmit influenza to persons at high risk should also be immunized. These groups include:

- Physicians, nurses and other personnel in both hospital and outpatient-care settings;
- Employees of nursing homes and chronic-care facilities who have contact with residents;
- Providers of home care to persons at high risk; and
- Household members (including children) of persons in high-risk groups.

Any person who wishes to reduce the likelihood of becoming ill with influenza should receive the vaccine.

The optimal time for organized vaccination campaigns for persons in high-risk groups is usually the period from October through mid-November. In the United States, influenza activity generally peaks between late December and early March. Administering vaccine too far in advance of the influenza season should be avoided, especially for nursing home residents, because antibody levels may begin to decline within a few months of vaccination.

Influenza vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine. Flu vaccine contains only noninfectious viruses, and cannot cause influenza. Respiratory disease after vaccination represents coincidental illness unrelated to influenza vaccination. The most frequent side effect of vaccination, reported by fewer than one third of vaccinees, is soreness at the injection site. Unlike the 1976 swine influenza vaccine, subsequent vaccines prepared from other virus strains have not been clearly associated with an increased frequency of Guillain-Barré syndrome.

The trivalent influenza vaccine prepared for the 1997–98 season will include A/Bayern/07/95-like (H1N1), A/Wuhan/359/95-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. United States manufacturers will use the antigenically equivalent strains A/Johannesburg/82/96 (H1N1), A/Nanchang/933/95 (H3N2), and B/Harbin/07/94 because of their growth properties.

A summary of the 1996–97 influenza season in Missouri can be found on pages 14 and 15 of this issue.

Surveys indicate that less than one-half of the high-risk populations receive influenza vaccine each year.** More effective strategies are needed for delivering vaccine to persons at high risk and to their health-care providers and household contacts. Successful vaccination programs have combined education

* The Morbidity and Mortality Weekly Report (MMWR) is available free of charge in electronic format and on a paid subscription basis for paper copy ($118 per year). To receive an electronic copy on Friday of each week, send an e-mail message to listserv@listserv.cdc.gov. The body content should read SUBscribe mmwr-toc. Electronic copy also is available from CDC's World-Wide Web server at http://www.cdc.gov/epo/mmwr/mmwr.html or from CDC's file transfer protocol server at ftp.cdc.gov/pub/Publications/mmwr. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Ph: (202) 512-1800.

** In 1995, Medicare provided reimbursement for this vaccine for less than 42.9 percent of its beneficiaries. Local health agencies and nursing homes who are not currently Medicare providers may apply, through a simplified application process, for a special provider number which will allow them to receive reimbursement for influenza vaccine given to Medicare beneficiaries. Any questions about this process should be directed to the Bureau of Immunization at (573) 751-6133.

for health-care workers, publicity and education targeted toward potential recipients, a plan for identifying persons at high risk (usually by medical-record review) and efforts to remove administrative and financial barriers that prevent persons from receiving the vaccine.

Outpatient Clinics and Physicians' Offices

Staff in physicians' offices, clinics, health-maintenance organizations and employee health clinics should be instructed to identify and label the medical records of patients who should receive vaccine. Vaccine should be offered during visits beginning in September and throughout the influenza season. The offer of vaccine and its receipt or refusal should be documented in the medical record. Patients in high-risk groups who do not have regularly scheduled visits during the fall should be reminded by mail or telephone of the need for vaccine.

Facilities Providing Episodic or Acute Care

Health-care providers in these settings (e.g., emergency rooms and walk-in clinics) should be familiar with influenza vaccine recommendations. They should offer vaccine to persons in high-risk groups or should provide written information on why, where and how to obtain the vaccine.

Nursing Homes and Other Residential Long-Term-Care Facilities

Vaccination should be routinely provided to all residents of chronic-care facilities with the concurrence of attending physicians rather than by obtaining individual vaccination orders on each patient. Consent for vaccination should be obtained from the resident or a family member at the time of admission to the facility, and all residents should be vaccinated at one time, immediately preceding the influenza season. Residents admitted during the winter months after completion of the vaccination program should be vaccinated when they are admitted.

Acute-Care Hospitals

All persons 65 years of age or older, and younger persons (including children) with high-risk conditions who are hospitalized at any time from September through March, should be offered and strongly encouraged to receive influenza vaccine before they are discharged. Household members and others with whom they will have contact should receive written information about why and where to obtain influenza vaccine.

Visiting Nurses and Others Providing Home Care to Persons at High Risk

Nursing care plans should identify patients in high risk groups, and vaccine should be provided in the home if necessary. Caregivers and other persons in the household (including children) should be referred for vaccination.

Health Care Workers

Administrators of all health-care facilities should arrange for influenza vaccine to be offered to all personnel before the influenza season. Personnel should be provided with appropriate educational materials and strongly encouraged to receive vaccine. Particular emphasis should be placed on vaccination of persons who care for members of high-risk groups (e.g., staff of intensive care units [including newborn intensive care units], staff of medical/surgical units and employees of nursing home and chronic care facilities). Using a mobile cart to take vaccine to hospital wards or other

(continued on page 15)

LATE BREAKERS

- Immunization Postcards—Governor Mel Carnahan and the Department of Health are enlisting private physicians in an additional effort to protect young Missourians from vaccine-preventable diseases. The Governor is sending a postcard to all physicians in the state who provide immunizations, asking them to check their records and bring at least 10 children up to date on their immunizations. The number of immunizations provided should be recorded on the card and the card returned to the Department of Health.

- House Bill 904, passed in August 1996 requires health insurers to cover childhood immunizations for children birth to age 5 years with no co-payment or deductible. The Office of the Governor has directed the Department of Health and the Department of Insurance to collect the names of insurance companies that have denied payments for immunizations. **If you are aware of any such instances, please contact Bryan Norman in the Bureau of Immunization at (573) 751-6133 with the names of the insurance companies or health plans or fax the information to him at (573) 526-5220.**

- Dr. Marion Warwick started with the Bureau of HIV/AIDS Care and Prevention Services on July 1, 1997. Dr. Warwick will serve as the Medical Consultant for the bureau. For more information on the bureau, see the article on pages 18 and 19 of this issue.

1996-97 Influenza Summary

Harvey Marx, C.P.S.
Mary E. Kliethermes, R.N., B.S.
Bureau of Communicable Disease Control

The 1996–97 influenza season had an early onset, with the first laboratory-confirmed case of influenza (type B) reported on September 23, 1996, in an adult Jefferson County resident. There were a total of 417 laboratory-confirmed cases of influenza reported in Missouri during the 1996–97 season. Of the 417 confirmed cases, 360 (86%) cases were type A, with 62 subtyped as H3N2. There were 57 (14%) cases of type B influenza reported. Confirmed influenza type A cases peaked during week 52 and influenza type B peaked during week 12. See Figure 1.

There were three laboratory-confirmed outbreaks in long-term care facilities. One was confirmed as type A, sub-typed H3N2, and the other two were confirmed as type A, but not sub-typed.

The influenza season was characterized by several outbreaks of influenza-like illness which were not laboratory-confirmed. The influenza-like illness occurred in the following settings: six outbreaks in long-term care facilities; eight outbreaks in elementary and secondary schools; one outbreak in a university; two community-wide outbreaks; one outbreak in an office setting; and one outbreak in an institution. All of the elementary and secondary school outbreaks occurred prior to the Christmas break.

Influenza-like illness peaked during week 51, one week prior to the confirmed influenza type A peak, and then declined to baseline levels by week 3. There was a small rise of influenza-like illness during week 10 that signaled the rise in confirmed influenza type B, which peaked during week 12. See Figure 2.

Pneumonia and influenza deaths fluctuated around the previous 13-year

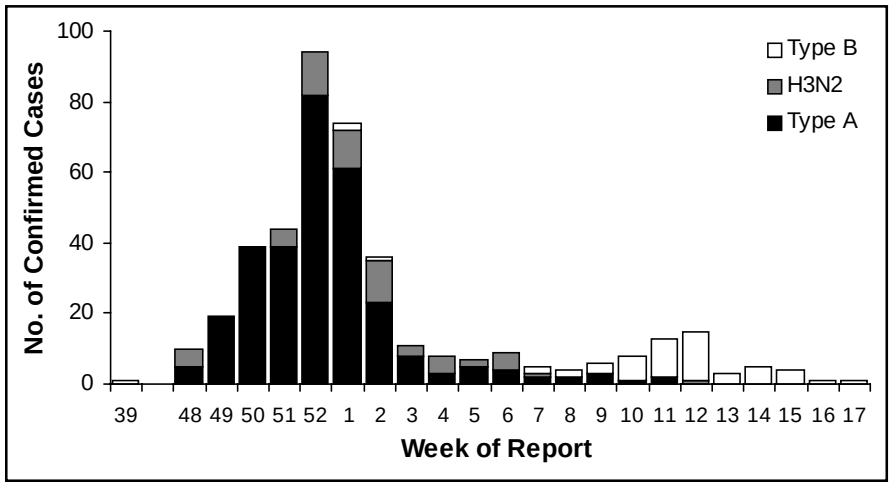


Figure 1. Laboratory-confirmed influenza cases by week of report, Missouri, 1996–97 season.

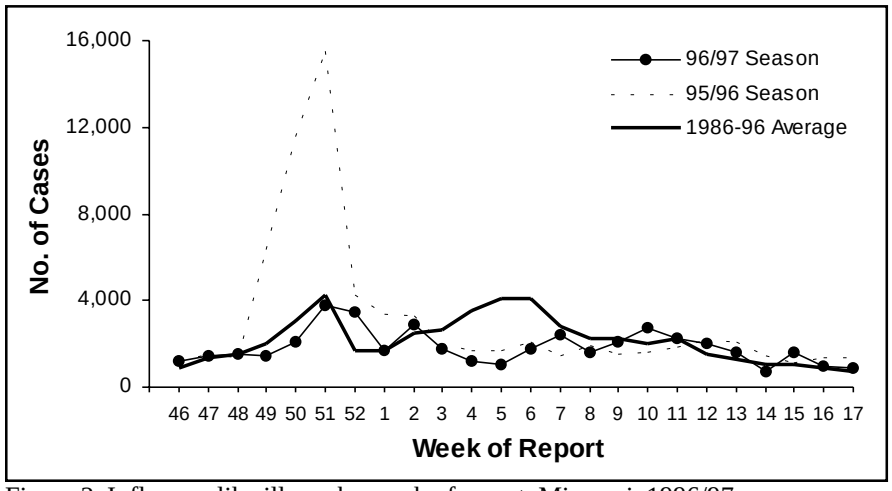


Figure 2. Influenza-like illness by week of report, Missouri, 1996/97 season, 1995/96 season and 1986–96 average.

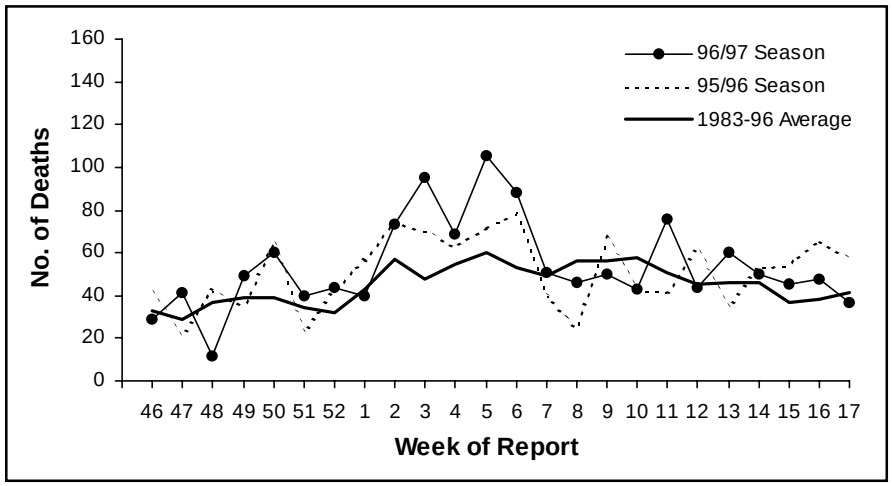


Figure 3. Pneumonia and influenza deaths by week of report, Missouri, 1996/97 season, 1995/96 season and 1983–96 average.

average, with a notable increase observed week 2 through week 7. Peaks above the previous 13-year average occurred in weeks 50, 3, 5 and 11. See Figure 3.

Figure 4 shows laboratory-confirmed influenza cases by county of residence.

1997-98 Influenza Season

The Food and Drug Administration Vaccines and Related Biological Products Advisory Committee has recommended that the 1997-98 trivalent influenza vaccine for the United States include A/Bayern/07/95-like (H1N1), A/Wuhan/359/95-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. United States manufacturers will use the antigenically equivalent strains A/Johannesburg/82/96 (H1N1), A/Nanchang/933/95 (H3N2), and B/Harbin/07/94 because of their growth properties.

Recommendations for the use of influenza vaccine for the 1997–98 season can be found on pages 12, 13 and 15.

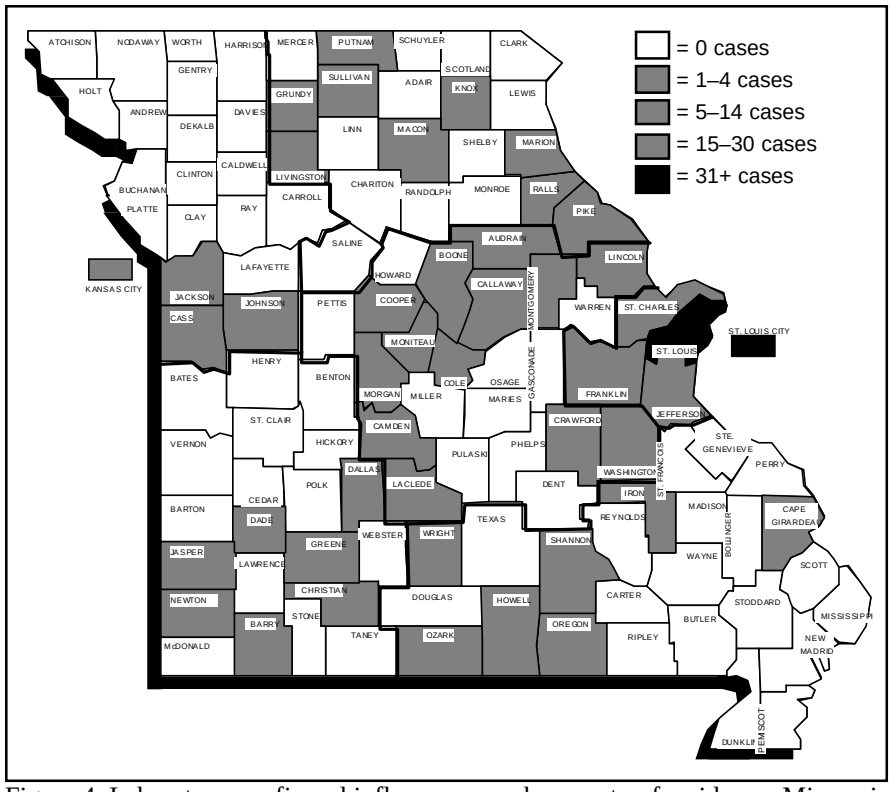


Figure 4. Laboratory-confirmed influenza cases by county of residence, Missouri, 1996–97 season.

Influenza Vaccine

(continued from page 13)
work sites and making vaccine available during night and weekend work shifts can enhance compliance, as can a follow-up campaign early in the course of a community outbreak.

Persons Traveling to Foreign Countries

Persons preparing to travel to the tropics at any time of year or to the Southern Hemisphere from April through September should review their influenza vaccination histories. If they were not vaccinated the previous fall or winter, they should consider influenza vaccination before travel. Persons in high-risk groups should be especially encouraged to receive the most current vaccine. Persons at high risk who received the previous season's vaccine before travel should be revaccinated in the fall or winter with the current vaccine.

VIDEOCONFERENCE

Surveillance of Vaccine-Preventable Diseases

The Centers for Disease Control and Prevention will present the satellite broadcast, "Surveillance of Vaccine-Preventable Diseases," on December 4, 1997 from 11:00 a.m. to 2:30 p.m.

This live 3.5 hour, interactive satellite videoconference will discuss vaccine-preventable disease (VPD) case definitions, clinical descriptions, case classification, laboratory testing, case investigations, reporting procedures and methods for enhancing quality of surveillance for VPDs. The broadcast will feature a question and answer session in which participants nationwide can address questions to the course instructors on toll-free telephone lines. Target audience includes: physicians, nurses, sanitarians, infection control practitioners, laboratorians, epidemiologists, disease reporters and others who are involved in the surveillance and reporting of VPDs.

Continuing education credit will be offered for a variety of professions, based on 3.5 hours of instruction.

For more information about the course or for site locations, contact the immunization representative in your district health office or the Bureau of Immunization at (573) 751-6133.

Tuberculois Infection in Missouri

Lynelle Phillips, R.N., M.P.H.
Bureau of Tuberculosis Control

Tuberculosis infection (TBI) has been a reportable condition in the state of Missouri since 1991. The Bureau of Tuberculosis Control maintains a registry of all reported TBI. Ongoing surveillance of TBI is an essential part of understanding tuberculosis disease transmission and prevention. Without treatment, TBI progresses to disease in 10 percent of those infected. For dually infected HIV/TBI, that percentage increases to 10 percent per year.

TBI is treatable with Isoniazid (INH). A six-month course of INH will virtually eliminate the progression of tuberculosis infection to disease over the lifetime of the patient. Ensuring that patients adhere to preventive therapy regimens is the key to eliminating the development of tuberculosis disease. Although the bureau has been passively tracking completion of therapy for all reported TBI, the database has been incomplete. The bureau has begun actively tracking completion of preventive therapy information on TBI patients reported in 1996.

The TBI database was queried for patients beginning INH treatment between June 1995 and June 1996 and existing data on completion of preventive therapy were compiled. Local health departments were contacted with a list of patients missing completion of therapy information. All health departments responded. Patients who completed preventive therapy were defined as those who had picked up all six monthly prescriptions of INH.

A total of 793 TBI patients should have completed preventive therapy in 1996. Inmates, patients taking INH longer than six months, patients who died, and those patients that discontinued therapy due to adverse reactions were excluded from analysis since all had extenuating circumstances affecting compliance. Although the bureau recommends that all TBI patients receive INH and follow-up care free of charge through their local health department, many patients were unknown to the health department and presumably received their care through a private physician. These patients were excluded since their completion status was unknown. After excluding those patients, 438 remained for analysis. Of the 438, 71.5 percent (n=313) completed therapy. Reasons given for not completing preventive therapy were "moved" (n=35), "lost to follow-up" (n=48) and "other" (n=42). See Figure 1.

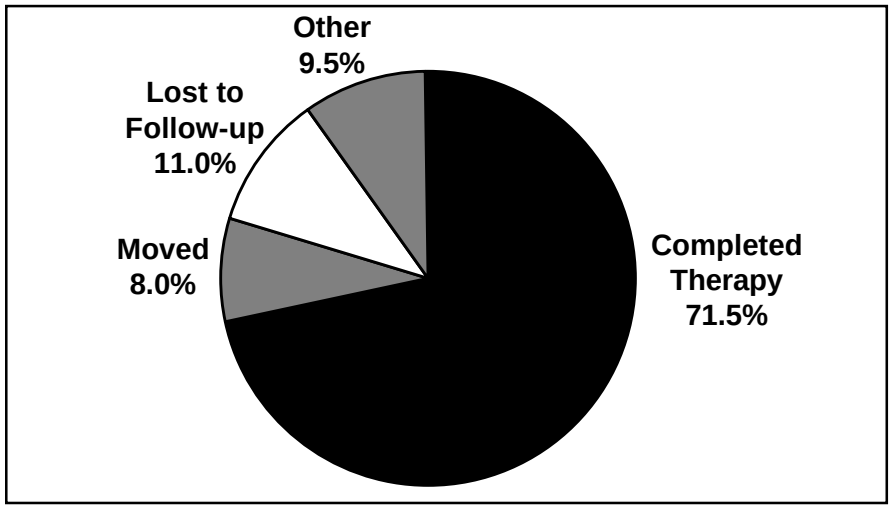


Figure 1. Outcome of preventive therapy in study group of 438 tuberculosis infected patients, Missouri, 1996.

The possibility that certain demographic factors may be associated with completion of therapy was assessed. These factors were age, sex, race, ethnic origin, size of PPD reaction, chest x-ray result and reasons for testing. Reasons given for being testing were contact to a tuberculosis (TB) disease case, employee or resident of long-term care, correctional or health care facility, medical referral, symptoms assessment, substance abuse screening and school requirement. Aside from ethnic origin and being a Department of Corrections (DOC) employee, no factor was associated with increased compliance. This finding is consistent with other research that suggests that compliance cannot be predicted based on the demographic characteristics of the patient.

Two factors were associated with increased compliance. Non-Hispanics were approximately three times more likely to complete therapy than Hispanics ($p < 0.05$). Also, DOC employees were approximately three times more likely to complete therapy ($p < 0.05$). A trend in increased compliance in older TBI patients was noted; however, it did not achieve statistical significance.

Several issues were gleaned from the results of this study. A surprisingly large number of TBI patients had to be excluded from the analysis because they were not followed by the health department. This highlights the challenges involved in coordinating surveillance with the private sector. Emphasis on education of private physicians about involving the local health department in preventive therapy and TBI follow-up may be needed.

Over two-thirds of the patients that began preventive therapy picked up all five refills and presumably completed treatment. Although encouraging, it may

be incorrect to assume that most patients that go to the trouble of picking up refills are, in fact, taking all medication daily. Directly observed preventive therapy (DOPT) is the only way to ensure the patient is taking the medication. DOPT can be implemented by placing the patient on twice weekly therapy (900 mg. INH twice weekly) and arranging for the health department or a responsible member of the community to observe the patient swallowing the pills. DOPT has been gaining increasing popularity, and has been implemented at correctional facilities, schools, health care settings, homeless shelters and in combination with directly observed therapy (DOT) for case contacts.

Hispanics were shown to be less likely to complete preventive therapy. This finding reflects the large number of migrant workers who are PPD positive, but so transient that ensuring completion of a six-month regimen of INH is virtually impossible. CDC has begun efforts to coordinate with Mexico by utilizing a binational TB registry. The Bureau of Tuberculosis Control is currently assessing the possibility of participating in this registry.

DOC staff were found to be more likely to complete preventive therapy. DOC has emphasized TB prevention over the last several years and makes great efforts to raise awareness about TB among staff and inmates. Their report of only one TB disease case last year and none thus far in 1997 attests to the success of their aggressive policies. The finding that DOC employees tend to complete their treatment more often is not surprising.

The data from this study have limitations associated with a new registry including underreporting and incomplete reporting. However, this study did help raise awareness about the TBI registry and reporting of not only TBI, but medication compliance.

If you have any questions about TBI reporting or the contents of this article, feel free to contact the Bureau of Tuberculosis Control at (573) 751-6122.

What is the Difference Between Tuberculosis Infection and Tuberculosis Disease?

Tuberculosis infection means that the person has been exposed to the bacteria that cause tuberculosis. They are not sick because the bacteria are inactive. They cannot spread the bacteria to others. A person with tuberculosis infection usually has a positive skin test, a normal chest x-ray and does not feel sick. An average of one in ten infected persons develop tuberculosis disease at sometime in their lifetime unless given preventive therapy. However, persons who are infected with the tuberculosis bacteria and have HIV infection may not show a reaction to the tuberculosis skin test, and are at considerably greater risk of developing tuberculosis disease. Persons with tuberculosis infection may be given Isoniazid (INH) for six months to prevent tuberculosis disease from developing.

Tuberculosis disease means that the person is sick from bacteria that are actively reproducing in their body. Persons with pulmonary tuberculosis usually have a positive skin test, an abnormal chest x-ray and one or more of the symptoms of tuberculosis such as persistent cough, chest pain, feeling weak, weight loss, fever and/or night sweats. These people are often capable of giving the infection to others. Persons with tuberculosis disease should be treated with four antituberculosis medications to treat the disease.

Reporting Tuberculosis Infection

Cindy Matheis
Bureau of Tuberculosis Control

Tuberculosis infection is a reportable condition in Missouri as required by Missouri Department of Health Regulation 19 CSR 20-20.020, which also requires reporting of tuberculosis disease. The monitoring and follow-up of tuberculosis infection can assist in preventing future cases of tuberculosis and eliminating the disease by 2010.

Tuberculosis infection must be reported within three days of identification. Notification is required from any physician, physician assistant, nurse, health care facility or local health agency that has knowledge of the positive skin test.

The *Tuberculin Testing Record* (TBC-4) or the *Disease Case Report* (CD-1) can be used to report tuberculosis infection. Local health agencies are encouraged to utilize the TBC-4 to gather data regarding risk factors and to document preventive treatment, monthly medication issued, monitoring for side effects and completion of preventive treatment. Some of the essential information that must be provided includes the results of the skin test in millimeters of induration, the results of the chest x-ray, risk factors and medication that the patient is receiving.

The Mantoux method is the standard for all tuberculin tests in Missouri. Multiple puncture (tine) tests are not appropriate for use in the diagnosis of tuberculosis infection or disease and should not be used. If a multiple puncture test was used, the patient should be retested using the Mantoux method, unless the reaction was vesicular.

Reporting forms can be obtained by contacting your local health department or calling the Bureau of Tuberculosis Control at (800) 611-2912 or (573) 751-6122.

HIV/AIDS Care and Prevention Update

Pamela Rice Walker
Division of Environmental Health and Communicable Disease Prevention

Effective May 1, 1997, the Bureau of HIV/AIDS Care was moved from the Division of Maternal, Child and Family Health (DMCFH) to the Division of Environmental Health and Communicable Disease Prevention, and was subsequently renamed the Bureau of HIV/AIDS Care and Prevention Services. The HIV/AIDS Care program was created in DMCFH in 1989.

The Bureau of HIV/AIDS Care and Prevention Services provides comprehensive services in responding to persons with HIV/AIDS by conducting the following activities:

- Coordinates services to HIV/AIDS individuals through a statewide system including community-based organizations, local, district and state health departments.
- Administers Missouri Medicaid AIDS Waiver services to eligible individuals in their home in lieu of in-patient nursing or hospital facility.
- Purchases out-patient medical and psychosocial services for HIV/AIDS eligible individuals.
- Purchases housing, utility, transportation, telephone and other support services using funds such as Ryan White Care Act Title II and Housing Opportunities for Persons with AIDS (HOPWA).
- Purchases HIV/AIDS medications for HIV/AIDS clients, including protease inhibitors.
- Develops resources for referral or purchased services utilizing federal, state and local agencies.

Since 1985, 10,722 cases of HIV infection have been reported in Missouri. Of these, 4,126 have died and 6,494 are living with HIV disease. This is a critical time for our society and for public health. How history views us will in large part depend on our ability to control this devastating disease and the compassion with which we meet the needs of those persons infected. A comprehensive, systematic response is essential. We must expand our knowledge about the impact of all communicable and infectious diseases on persons infected with HIV. We must develop effective interventions and integrate services for HIV/AIDS care and prevention across communities, political jurisdictions, organizational structures, and provider networks. We must manage our limited resources in an accountable, effective and efficient manner. We must use our science, our shared knowledge and our expertise to effect societal change. I welcome the move of the Bureau of HIV/AIDS Care and Prevention Services to this division and will support continuity of care for our clients in service coordination.

Leadership

Effective July 1, Ms. Mary Menges was appointed as Chief of the Bureau of HIV/AIDS Care and Prevention. Ms. Menges comes to the bureau with a rich background in tuberculosis, mental health, HIV and refugee health. Her most recent role was Assistant Bureau Chief in the Bureau of Tuberculosis Control. Ms. Menges played a significant role in the development of Missouri AIDS legislation in 1986. In 1989, she was appointed the AIDS/Tuberculosis Health Coordinator for the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse. She authored the division's first HIV/AIDS policy for drug treatment programs. In recent years, she also managed the Missouri Refugee Health Program, which provides incoming refugees with a health assessment designed to eliminate health related barriers to successful resettlement, while protecting the health of the Missouri population. Additionally, she has eight years of experience working in state and federal financial and personnel systems. She is highly experienced and committed to developing community and statewide partnerships to address the public health needs of all Missourians.

Ms. Menges' overall goal is to assure that the diverse medical, mental health and social service needs of the 6,494 persons living with HIV disease in Missouri are addressed compassionately, effectively and equitably, with a combined system built upon available federal, state and local resources. Specifically, Ms. Menges has committed to the following goals:

- Ensure the financial accountability and viability of all Department of Health (DOH) HIV/AIDS care programs;
- Work with HIV/AIDS care partners to implement an effective HIV/AIDS Care Advisory Committee;
- Establish clear goals, programs and processes for delivery of protease inhibitors;
- Effectively outsource case management services to local HIV/AIDS care providers; and
- Develop an experienced, motivated and effective bureau staff team.

HIV/AIDS Care Services/ Medicaid Waiver Outsourcing

In an effort to streamline case management services for the client, DOH is committed to outsourcing all case management services, including Medicaid Waiver services. This is a complicated process and much remains to be done including: an assessment of client needs, fiscal controls, Division of Medical Services approval for waiver, contract language, an assessment of local capacity, DOH staff reassignment and local consortium input. Ms. Kathleen Simpson, Assistant Bureau Chief, has been assigned the staff lead on case

management and will be working over the next several months to address these issues.

HIV/AIDS Care Service Statewide Advisory Committee

DOH in partnership with those living with HIV, elected officials, sister agencies, local community leaders and service delivery providers, is charged with developing a program to effectively control the spread of HIV and meet the health, mental health and social needs of those living with HIV.

Therefore, DOH is establishing the HIV/AIDS Care Advisory Committee for the purpose of providing a forum to discuss policy and future direction for statewide HIV/AIDS care programs. The advisory committee will advise the Chief of the Bureau of HIV/AIDS Care on care service delivery, access, client needs and policy issues.

Specifically, the HIV/AIDS Care Advisory Committee will:

- Consist of 32 members chosen through a public nominations process, which took place in August 1997. Committee members must meet one or a combination of the following selection criteria:
  - HIV positive or living with AIDS,
  - experience with receiving state social, medical, substance abuse, psychiatric or mental health services associated with HIV infection,
  - experience providing social, medical, substance abuse, psychiatric, correctional or mental health services to persons who are HIV positive or living with AIDS,
  - all successful candidates must be able to participate in quarterly meetings held in central Missouri.
- Consist of one staff member from DOH knowledgeable in HIV/AIDS care issues and one staff member from DOH knowledgeable in sexually transmitted disease (STD)/HIV prevention issues, chosen through the nominations process.
- Be epidemiologically representative and be gender, racially, socially, experientially and geographically diverse.
- Advise the Chief of the Bureau of HIV/AIDS Care on policy and service delivery issues including:
  - access to HIV/AIDS treatment and services,
  - cost of HIV/AIDS treatment and services,
  - early intervention in the course of HIV disease,
  - secondary prevention,
  - unmet client medical, mental health and social needs,
  - education and outreach to care clients.
- Coordinate with the Missouri HIV/STD Prevention Community Planning Groups regarding cooperative issues and maximizing services.
- Be governed by Roberts Rules of Order.
- Meet quarterly in either Jefferson City or Columbia. The first Advisory Committee quarterly meeting is scheduled for October 6–7, 1997 in Jefferson City.
- Be staffed by the Chief of the Bureau of HIV/AIDS Care and other persons she may assign.

Implementation of House Bill 20, Bureau of HIV/AIDS Care and Prevention Services

In May 1997, the Missouri legislature called upon DOH to create an organization that would adequately address the needs of Missourians at risk for and living with HIV. In the effort to fully assess the needs for comprehensive HIV/AIDS prevention and care services, DOH engaged in a series of planning discussions with key community partners during the summer of 1997 to discuss the following:

- Gaps in prevention and care services.
- Necessary linkages between communicable disease, tuberculosis, STD/HIV Prevention and HIV/AIDS Care.
- Identification of the most critical issues facing individuals, communities, providers and public health managers.

Key community partners include:

- Members of regional and statewide STD/HIV Prevention and HIV/AIDS Care community planning processes,
- Persons at risk for and living with HIV/AIDS disease,
- Missouri state departments engaged in HIV/AIDS prevention or care services (Departments of Corrections, Mental Health, Social Services and Elementary and Secondary Education), and
- Leaders of other health planning efforts: Minority Health Alliances, Caring Communities, Community Health Assessment Resource Team (CHART) and Local Health Advisory Committee.

DOH will carefully consider all of the issues and ideas generated by the sessions, provide feedback to partners, further develop programs that will seek to halt the epidemics of sexually transmitted diseases including HIV, assure appropriate care and treatment for Missourians living with HIV/AIDS, and effectively integrate state communicable disease and service delivery programs affecting Missourians living with HIV disease.

Effective July 1, the Bureau of HIV/AIDS Care was renamed the Bureau of HIV/AIDS Care and Prevention Services and began to track funding and spending in accordance with House Bill 20. However, other major integration or policy changes will not be made until after the issues identification process is complete on October 1.

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The Managing Editor is H. Denny Donnell, Jr, MD, MPH, State Epidemiologist. Production Manager is Diane C. Rackers. Questions or comments should be directed to (573) 751-6128 or toll free (800) 392-0272.

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Charge for Metabolic and Genetic Disease Screening

On June 26 the Governor signed House Bill 600 which amended the law that requires all newborns to be screened for metabolic and genetic diseases such as PKU. This amendment authorized the Department of Health to charge a fee for this screening. It also includes language clarifying the parties responsible for the fee and specifying that the fee is recoverable from third parties. As a result, the department will change its fee collection system from a patient-based fee-for-service system to a system in which the specimen collection kits will be sold to health care providers and facilities, including local public health agencies.

Beginning August 28, 1997, specimen collection kits for newborn screening will be sold for $13 per kit (one specimen per kit). Order forms are available from the State Public Health Laboratory, 307 W. McCarty Street, Jefferson City, MO 65101, Ph: (573) 751-3334 or FAX: (573) 751-7219. Payment must accompany the order form.

We realize that there will be specimens in transit on August 28 and providers who do not see newborns on a frequent basis. Consequently, we will continue to accept specimen kits which have not been pre-paid through December 1997 and will bill for these specimens. However, beginning January 1, 1998, all newborn screening specimens must be paid for in advance.

For further information on ordering specimen collection kits, please call the State Public Health Laboratory at (573) 751-3334.